

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 12.10.2016

Version 5.6

## SECTION 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Catalogue No.	816016
Product name	(S)-(+)-Glutamine for synthesis
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	56-85-9

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for synthesis For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).
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### 1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

1.4 Emergency telephone number	Please contact the regional company representation in your country.
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## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

This substance is not classified as dangerous according to European Union legislation.

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No.	816016
Product name	(S)-(+)-Glutamine for synthesis

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### 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	C <sub>5</sub> H <sub>10</sub> N <sub>2</sub> O <sub>3</sub> (Hill)
EC-No.	200-292-1
Molar mass	146,15 g/mol

Remarks	No disclosure requirement according to Regulation (EC) No. 1907/2006
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### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

After eye contact: rinse out with plenty of water. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

### 4.2 Most important symptoms and effects, both acute and delayed

We have no description of any toxic symptoms.

### 4.3 Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No. 816016  
Product name (S)-(+)-Glutamine for synthesis

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*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

nitrogen oxides

**5.3 Advice for firefighters**

*Special protective equipment for firefighters*

In the event of fire, wear self-contained breathing apparatus.

*Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6. Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

**6.2 Environmental precautions**

Do not empty into drains.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**6.4 Reference to other sections**

Indications about waste treatment see section 13.

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No.	816016
Product name	(S)-(+)-Glutamine for synthesis

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Advice on safe handling*

Observe label precautions.

#### *Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

### 7.2 Conditions for safe storage, including any incompatibilities

#### *Storage conditions*

Tightly closed. Dry.

Recommended storage temperature see product label.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

### 8.2 Exposure controls

#### **Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

#### **Individual protection measures**

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

full contact:

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No. 816016  
Product name (S)-(+)-Glutamine for synthesis

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Glove material: Nitrile rubber  
Glove thickness: 0,11 mm  
Break through time: > 480 min

splash contact:

Glove material: Nitrile rubber  
Glove thickness: 0,11 mm  
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Respiratory protection*

required when dusts are generated.

Recommended Filter type: P1 filter

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**

Do not empty into drains.

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**SECTION 9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

Form	solid
Colour	white
Odour	odourless
Odour Threshold	Not applicable

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No.	816016
Product name	(S)-(+)-Glutamine for synthesis

---

pH	4,0 - 6,0 at 25 g/l 20 °C
Melting point	185 - 186 °C Decomposition
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	Not applicable
Density	1,47 g/cm <sup>3</sup> at 20 °C Method: OECD Test Guideline 109
Relative density	No information available.
Water solubility	26 g/l at 18 °C  100 g/l at 40 °C
Partition coefficient: n-octanol/water	log Pow: -3,64 (experimental) (Lit.) Bioaccumulation is not expected.

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No.	816016
Product name	(S)-(+)-Glutamine for synthesis

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Auto-ignition temperature	Method: Tested according to Directive 92/69/EEC. not auto-flammable
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Decomposition temperature	above melting point
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Viscosity, dynamic	No information available.
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Explosive properties	Not classified as explosive.
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Oxidizing properties	none
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## 9.2 Other data

Bulk density	ca.640 kg/m <sup>3</sup>
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Particle size	Mean particle size 36,2 µm Method: OECD Test Guideline 110
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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Strong oxidizing agents

### 10.4 Conditions to avoid

Strong heating (decomposition).

### 10.5 Incompatible materials

no information available

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No. 816016  
Product name (S)-(+)-Glutamine for synthesis

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**10.6 Hazardous decomposition products**

in the event of fire: See section 5.

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**SECTION 11. Toxicological information**

**11.1 Information on toxicological effects**

*Acute oral toxicity*

LD50 Rat: > 16.000 mg/kg

(ECHA)

*Acute inhalation toxicity*

This information is not available.

*Acute dermal toxicity*

This information is not available.

*Skin irritation*

This information is not available.

*Eye irritation*

This information is not available.

*Sensitisation*

This information is not available.

*Germ cell mutagenicity*

*Genotoxicity in vitro*

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

(ECHA)

Mutagenicity (mammal cell test): chromosome aberration.

Chinese hamster lung cells

Result: negative

(ECHA)

*Carcinogenicity*

This information is not available.

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No. 816016  
Product name (S)-(+)-Glutamine for synthesis

---

*Reproductive toxicity*

This information is not available.

*Teratogenicity*

This information is not available.

*Specific target organ toxicity - single exposure*

This information is not available.

*Specific target organ toxicity - repeated exposure*

This information is not available.

*Repeated dose toxicity*

Rat

male and female

Oral

90 d

daily

NOAEL: 833 - 964 mg/kg

Subchronic toxicity, (ECHA)

*Aspiration hazard*

This information is not available.

## 11.2 Further information

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Substances which occur in nature

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### 12.1 Toxicity

*Toxicity to algae*

Growth inhibition ErC50 *Desmodesmus subspicatus* (green algae): > 100 mg/l; 72 h

OECD Test Guideline 201

### 12.2 Persistence and degradability

*Biodegradability*

77 %; 28 d

OECD Test Guideline 301C

Readily biodegradable

### 12.3 Bioaccumulative potential

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No. 816016  
Product name (S)-(+)-Glutamine for synthesis

---

*Partition coefficient: n-octanol/water*

log Pow: -3,64  
(experimental)

(Lit.) Bioaccumulation is not expected.

#### 12.4 Mobility in soil

No information available.

#### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

#### 12.6 Other adverse effects

Discharge into the environment must be avoided.

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### SECTION 13. Disposal considerations

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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### SECTION 14. Transport information

#### Land transport (ADR/RID)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

#### Inland waterway transport (ADN)

Not relevant

#### Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

#### Sea transport (IMDG)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

#### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

**SAFETY DATA SHEET**  
according to Regulation (EC) No. 1907/2006

Catalogue No. 816016  
Product name (S)-(+)-Glutamine for synthesis

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**SECTION 15. Regulatory information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

*EU regulations*

Major Accident Hazard SEVESO III  
Legislation Not applicable

Regulation (EC) No 1005/2009 on substances that not regulated  
deplete the ozone layer

Regulation (EC) No 850/2004 of the European not regulated  
Parliament and of the Council of 29 April 2004 on  
persistent organic pollutants and amending  
Directive 79/117/EEC

Substances of very high concern (SVHC) This product does not contain substances  
of very high concern according to  
Regulation (EC) No 1907/2006 (REACH),  
Article 57 above the respective regulatory  
concentration limit of  $\geq 0.1$  % (w/w).

*National legislation*

Storage class 10 - 13

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out.

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**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

Catalogue No.	816016
Product name	(S)-(+)-Glutamine for synthesis

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Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

**Regional representation**

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*